

130 BC.

VIA EGNATIA built

c130-110BC

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QUMRAN was built by Essenes  
Destroyed by Earthquake 3 BC

the Egyptian year by studying several  
years' worth of solstices to come up  
with a reasonably close approximation  
of the true solar year.

365 days 5 hours 55 min.  
some 6 min too long.

130BC

Duncan: Cal

Hipparchus (fl. 146-127 BC)  
discovered the precession of the  
equinoxes, a slow shift westward  
of the equinoctial points against  
the stars, something Isaac Newton  
much later determined was caused  
by the very subtle gravitational  
tug of the moon and sun on the  
earth. He confirmed the accuracy

C 130 BC

Duncan: Cal

141-127 BC

HIPPARCHUS

length of year  
365 day 5 hours 55 min.

= 365.2465 277

~ 365.2422

130BC

The Astronomer HIPPARCIBUS (fl 146-127BC) discovered the precession of the equinoxes (a slow shift westward of the equinoctial points against the stars).

He came up with an approximation of the true solar year: 365d, 5h, and 55 minutes, some six minutes too long.

C130BC  
205-120BC

1912 Dates J-BK

Forty books of "History"  
of which we have 5 complete  
and considerable portions of  
18 others by  
POLYBIUS

(about 205-120 BC) the chief  
Greek historian of this period.

constellation PISCES and is approaching  
AQUARIUS

Moon also precesses with period of  
18.5 or 18.6 yrs causing a sine wave  
on the Earth's precession circle = nutation



130 BC

## Precession of EQUINOXES

Earth's axis changes its direction in about 25,800 or 25,900 yrs period

North CELESTIAL pole describes a small circle around North ECLIP TIC pole with consequent Westward drift of the equinoxes

HIPPARCHUS in 130 BC first noticed  
Then Vernal equinox was in constellation  
Aries: Now Vernal Equinox is in

130 B C

The phenomena of precession  
of the Equinoxes was discovered

130BC

PHYSe driven from his throne <sup>Egypt</sup>  
by Cambyses

130-127 BC

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Seleucid Parthian War  
Antiochus VIII ~~was~~ initially  
successful, but killed at  
ECBATANA. Parthian Congress  
East of Euphrates

130 B.C.

Greek astronomer Hipparchus  
uses the position of the Moon's  
shadow during a solar  
eclipse to estimate the distance  
to the Moon (accurate to about  
13%).

130 BC

Hipparchus was the first  
to observe that the solar year  
is not exactly 365.25 days  
long

123/2

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Tubernate of Sauris Isrochus

130 B C

Greek astronomer Hipparchus  
calculated the precession  
of the equinoxes  
(about 50 sec of arc)  
every year.

Takes 25,800 yrs for Earth's  
axis to complete one motion



130AC

Bactria declined after  
capture by nomadic  
Sakas.

130 BC

Hipparchus first observed that the solar year is not exactly 365.25 days long.

This was not incorporated in Greek Calendars.

The Greeks continued to use the same 3 intercalations in 8 yrs that they used in the 6th Cen B.C.

of determining LATITUDE and LONGITUDE.

HIPPARCHUS. Greek scientist, the father of systematic ASTRONOMY, who compiled the first star catalog and ascribed stars MAGNITUDES. Made a good estimate of the distance and size of the moon. Probably first to discover PRECESSION. Invented many astronomical instruments. Worked on plane & spherical geometry. Suggested many

131BC

VIA POPILLIA (1) built.

VIA POPILLIA (2) built. This road is also called the VIA ANNVIA, and there is still doubt who is responsible.

131BC

VIA ANNUIA(2) built.  
maybe VIA POPILLIA

of the Roman Army, the Consul PERPERNA  
(succeeded Cossus), speedily marched over  
into Asia and surprised A<sup>1</sup>RISTONICUS,  
who was resting after his recent victory.  
Perperna annihilated his army and forced  
him to flee to city of STRATONIC<sup>1</sup>EA, which  
Perperna besieged. Reduced Aristoniceus  
to starvation and compelled him to  
surrender. Perperna was taken ill  
at Pergamum and died. Aristoniceus  
by order of the Senate was strangled in a Roman  
Prison.

Publius Licinius Crassus, Consul and Pontifex Maximus was dispatched with a well equipped army against ARISTONICUS, the brother of ATTALUS.

Although supported by powerful allies, Crassus was defeated in a pitched battle and his army was compelled to flee after suffering heavy losses. Crassus was killed in the battle. Upon hearing of the death of Crassus and the slaughter



131 BC

Rome

For the 1<sup>st</sup> time, both  
Censors were Plebeians.

The Censor METELLUS MACEDONICUS had begged men to marry and begot children as a duty to the state, however much of nuisance a wife might be, but the number of celibates and childless couples increased more rapidly after he spoke. Children were now luxuries which only the poor could afford.